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GRADES OF PLATINUM

(First Revision)

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GRADES OF PLATINUM

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 May 1984, after the draft finalized by the Precious Metals Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard was earlier published in 1963. In this revision one grade of platinum has been eliminated and the minimum platinum content limit is also modified. One more clause giving impurity limits for Grade 2 platinum has been introduced.

0.3 Platinum and platinum alloys processed or in the form of ingots are at present imported to the extent of 200 kg annually. The nanufacturers in India use platinum in pure or in alloyed form in the manufacture of various articles, such as resistance thermometers, thermo-couples, laboratory equipment, electrical contacts, jewellery, etc. This standard, which specifies four grades of platinum, has been prepared with a view to enabling the manufacturer to make correct use of the material and also to give general guidance to the user.

0.4 Grade 1 Platinum is generally used for thermo-couples and resistance thermometers. Grade 2 platinum is generally used for anodes for electroplating, preparation of pure salts and fabrication of catalytic gauzes. Grade 3 platinum is generally used for contacts for electrical instruments and relays, and for laboratory ware. Grade 4 is generally used for various commercial purposes and for the manufacture of platinum alloys when high purity is not required. This grade may also be used for the manufacture of various alloys used for jewellery.

0.5 This standard has been formulated with a view to providing a fundamental basis of transaction among all interests, but is not intended to regulate the price structure and other details of the usual trace transactions. It does not relate to the conditions of a contract.

0.6 In preparing this standard, the Sectional Committee took into consideration the manufacturing and trade practices followed in the country in this field. Also due to the fact that platinum is used in international transactions, due notice has been taken of the practices followed by other countries also.

0.7 For the purpose of deciding whether a particular requirment of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes four grades (*see* **2.1**) of platinum used in the manufacture of various platinum articles and alloys.

2. GRADES

2.1 Grades of platinum shall be as follows:

Grade	*Minimum Platinum Content* Percent
1	99·99
2	99·95
3	99·90
4	99·00

2.1.1 Impurity limits for Grade 2 shall be as follows:

Constituent	*Percent, Max*
Cu	0·04
Ni	0·02
Mn	0·02
Cr	0·02
Ca	0·005
Mg	0·005
Fe	0·04 (or 0·05, if Ni, Mn or Cr is absent)
Ag	0·005
Pd	0·05
Total impurities	0·05

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*Rules for rounding off numerical values (*revised*).

3. PHYSICAL REQUIREMENTS

3.1 Physical requirements, such as hardness, finish of sheets or strips, resistivity, etc, for various grades, shall be subject to agreement between the purchaser and the manufacturer.

4. DETERMINATION OF PLATINUM CONTENT AND IMPURITIES

4.1 Platinum content and impurities shall be determined either as given in IS : 2270-1965* and IS : 2271-1967† or by any other established instrumental/chemical method. In case of dispute the procedure in the latest versions of IS : 2270 and IS : 2271 shall be the referee method.

5. MARKING

5.1 The meterial shall be marked legibly with the grade or the specified fineness in accordance with **2.1**, and the mark shall be put in a prominent position. The name of the manufacturer or his recognized trade-mark shall also be marked.

5.1.1 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution.

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*Methods for assaying of platinum and platinum alloys.

†Recommended method for spectrographic analysis of platinum.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	st

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	7 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wu/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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